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ABSTRACT

This study examined voluntary and involuntary withdrawal rates of students of various racial origins at York University in Ontario (Canada). Data were obtained from three surveys of first-year students conducted in 1993, 1994, and 1995, and involving 1,864 students. Information on Ontario Academic Credit (OAC) marks, first year grade point averages (GPAs), and enrollment status at the beginning of the second year was obtained from school records. It was found that differences in retention rates for Blacks and students of South Asian, Chinese, "other" non-European, and European origins were small. Only gender, perceptions of the value of a degree, a belief that students will return for a second year, and GPA were of utility in predicting voluntary withdrawal at the end of the first year. Increased hours of employment and living in temporary accommodations contributed to involuntary withdrawal. Similarly, being Black or of "other" racial origin also had a slight effect on the probability of not returning for a second year. (Contains 48 references.) (MDM)

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RACIAL ORIGIN AND WITHDRAWAL FROM UNIVERSITY

J. PAUL GRAYSON

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Racial Origin and Withdrawal from University

J. Paul Grayson
Institute for Social Research
York University

December 1996

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The following is a working paper. Comments are welcome.

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Student Withdrawals at York University: First and Second Year Students, 1984-85
Gordon Darroch, David A. Northrup and Mirka Ondrack (1989)

Summary

Canada in general, and Toronto in particular, are experiencing increased immigration of individuals from non-European countries. As a result, it is important to examine the experiences of such individuals in major institutions such as universities. Unfortunately, Canadian researchers have yet to undertake this responsibility. Where research of this nature has been conducted in the United States, it has been found that particularly Black students and those of Hispanic origin have far lower retention rates than White students and those of Asian origin.

In this article, attention will focus on the first year voluntary and involuntary withdrawal of students of various racial origins at York University. Students who withdraw involuntarily are those who because of low academic standing are debarred from continuing for a second year. Information for the study was obtained through end-of-year surveys carried out in 1993, 1994, and 1995 and from administrative records. In general it was found that differences in overall retention rates for Blacks and students of South Asian, Chinese, 'other' non-European, and European origins are small. Moreover, a logistic regression analysis indicated that while racial origin is not a predictor of voluntary withdrawal from university at the end of first year, it has a slight effect on involuntary withdrawal.

Introduction

In the United States, research has demonstrated that the first year retention rate of Black and Hispanic students is lower than that of Whites and students of Asian origin. As the non-White populations of large Canadian cities such as Toronto and Vancouver are growing rapidly, it is important to know whether or not a similar pattern can be found in this country. As a first step in dealing with this general concern, this article examines the first year voluntary and involuntary withdrawal of students of different racial groups at York University. Information for the study was collected from end-of-year surveys and from administrative records.

The American Situation

In the United States it is well documented that graduation rates for Blacks, Hispanics, and American Indians are lower than for Whites and Asians. In a study based on 75,752 students entering 365 baccalaureat granting institutions in 1985, Astin, Tsui, and Avalos (1996:7) found that after four years of study, 19.4% of Blacks, 30.5% of Mexican Americans, and 22.9% of American Indians had earned degrees. The corresponding figures for Whites and Asian Americans were 42.7% and 50.2% respectively. After nine years of study the graduation rates of Blacks (33.9%), Mexican Americans (39.5%), and American Indians (33.2%) had increased substantially but were still well below those of Whites (47.3%) and Asian Americans (57.6%).

Much of the overall attrition rate in American universities is accounted for by students who fail to return for a second year. For example, for 67 large institutions in the United States, Smith (1995:5) shows that the first year attrition rates for Blacks, American Indians, and Hispanics were 27%, 26%, and 31% respectively. The rate for what are characterized as 'other ethnic groups' was only 18%.

A number of explanations have been offered for varying attrition rates such as the foregoing. First, some authors (Olivas, 1985; Mortenson and Wu, 1990; Porter, 1990; and Ekstrom, 1991) have focused on the relationship between student debt and persistence and have found that minority students are more reluctant than Whites to incur debt to finance their education. As a result, it is understandable that the former would have lower retention rates than the latter. Second, it has been argued that minority students are less prepared academically than non-minority students for university and that this factor contributes to low retention rates (St. John, Kirshstein, and Noell, 1991; Astin, Tsui, and Avalos 1996). Third, minority students experience hostility on predominantly White campuses (Patterson, and Associates, 1984; Loo and Rolison, 1986; Sedlacek, 1987; White and Sedlacek, 1987). Frequently, this hostility is linked to outcomes like low retention rates (Jackson and Swan, 1991; Nettles, 1991; Smedley, Myles, and Harrell, 1993:444).

The Canadian Situation

In Canadian universities, on-going systematic information is collected on neither attrition rates nor race[1]; however, some information on the former is provided by Gilbert (1991) and Wong (1994:13). In a background paper for the Commission of Inquiry on Canadian University Education, Gilbert estimates that after five years the non-completion rate for university undergraduates is approximately 42%. The latter shows that among 13 universities, the average first year attrition rate is approximately 24%; however, the range is from 12% to 44%.

Despite the unavailability of data on both attrition rates and race, recent immigration patterns have led to a situation in which information on each is of increasing importance. Over the past couple of decades, largely because of immigration, there have been substantial increases in Canada's non-White population. In 1991 approximately 1.9 million adults, representing 9% of the total population aged 15 and over, were classified by Statistics Canada as visible minorities (Kelly, 1995). In 1981 fewer than 5% of Canadians had been classified as members of a visible minority group. It is anticipated that by 2016 the number of visible minority group members in Canada will triple to over six million (Kelly, 1995).

In 1991, 93% of adult visible minority group members lived in a census metropolitan area. In Toronto, members of such groups comprised 24% of the population. The figures for Vancouver and Montreal were 15% and 10% respectively. By the year 2001 it is expected that 45% of Toronto's population will be non-White (Samuel, 1992).

Despite the recency of non-White immigration, on the basis of 1991 census data Ornstein (1996) has shown that a simple White-non-White distinction does not explain the variation in the proportion of the 19 to 24 year old population of Metro Toronto engaged in full-time educational activities. Overall, 38.7% of the Metro population in this age category was in full-time education. The figure for individuals of all European origins was only 35.4%. The racial-ethnic group with the fewest 19 to 24 year olds in full-time education was Portuguese (22.6%). The group with the highest was Korean (71.9%).

Although figures such as these indicate that among the college/university aged population in Toronto accessibility to education does not divide neatly along White- non-White lines, in view of recent immigration patterns, it is

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[1] Although 'race' should be defined in terms of physiological characteristics such as skin colour and hair texture, quite frequently the term is used in a way that includes ethnic characteristics such as language and other elements of culture. For example, while 'Chinese' is an ethnic category, it is often used as a race label. Given the frequency of the latter usage in both everyday language and research, in this article race will be used in a way that may imply some ethnic as well as racial characteristics.

understandable that the experience of non-White students in the university system has been of growing concern to politicians and members of the university community. For example, as pointed out in 1992 by Richard Allen, then Minister of Education for Ontario, "we must continue our efforts to develop and improve the climate for under represented groups not only by making universities more accessible, but also by making sure that the necessary supports exist that will allow these individuals to succeed in their studies" (*University of Toronto Bulletin*, March 23, 1992). It is fair to say that when considering the situation of non-White students in Ontario's universities, for many, the common assumption is that, as in the United States, such students are at a disadvantage.

This impression is clearly evident in an article by Henry and Tator (1994:8)[2] who argue that, "the silence and marginalization on the issues of racism that generally pervade many classrooms in the university deeply affects the self-esteem and self-image of students of colour, who often engage in a daily struggle to affirm their own social identities in relation to an institutionalized culture that denies their personal feelings, stories, and experiences". Unfortunately, only one published study based on other than anecdotal evidence has been conducted in a Canadian university (York) in which outcomes are linked systematically to university experiences and race (Grayson, 1995). In this instance it was found that first year experiences vary by race; however, the data do not support the conclusion that the experiences of students of non-European origin are uniform and necessarily negative while those of European background are positive. Moreover, while such experiences may have implications for first year outcomes, the impact of race per se on outcomes - self-assessed intellectual development and knowledge, grade point averages, and intentions to return to the university - is minimal. On average, 63% of students stated the intention of returning to York for a second year and differences among students who were Black, of East Indian, Chinese, 'other' non-European, and European origins were not statistically significant.

There is no way of telling whether or not the findings of this study, which to a degree are contrary to much of the literature on non-Whites in many US universities, can be generalized to other Canadian universities. Nonetheless, it is not implausible that for historical reasons racial dynamics in Canadian universities may be different from those south of the border. For example, as Benjamin (1994:14) points out, in contrast to the United States, Canada had only a short history of slavery and slavery never dominated the mode of production as it did in the American South prior to the civil war. In addition, while the vast majority of Blacks in the United States were born there, a high proportion of Canadian Blacks are recent immigrants from Caribbean countries. More importantly, some evidence indicates that at least one outcome of the university experience, graduation, may not vary by race in Canada. As noted by a report of the Student-Environment Study Group at the University of Guelph (1992:9),

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[2]Electric Library page reference: http://www.elibrary.com/search.cgi.

while Black and Chicano students in the United States may have lower graduation rates than Whites, in Canada, "the university graduation rate among Blacks, Caribbeans, and Central/South Americans is about equal to the general population; the graduation rate among Asian groups is higher than the general population."

While American studies of racial dynamics in universities provide an obvious and welcome benchmark for research carried out in Canadian institutions, because of societal differences such as the above, in Canada, it is necessary to determine the relationships among race, university processes and experiences, and educational outcomes, before deciding on the appropriateness of integrating Canadian findings into American frameworks. In this article, as a step in this broader research agenda, attention will focus specifically on first year withdrawal and race at York University in Toronto.

Orientation to Research

While it is not the intention in this article to provide an intellectual history of research on retention and attrition, it is fair to say that much recent research carried out in the United States has utilized insights gained from the 'student integration model' (Tinto, 1993). Briefly, the model, as modified by others, involves the notions that persistence in university is a function of: a. the pre-entry characteristics of students (high school marks, family income, etc.); b. initial career goals and commitment to the university; c. academic and social integration/involvement of students over the course of the academic year (strictly speaking, Tinto deals with integration); d. emergent career goals and institutional commitment over the course of the academic year; and e. final commitments at the end of the academic year to either remain in, or leave, the institution.

Notions of social and academic integration/involvement are central to the model. Examples of the former are participation in extra curricular activities and making friends; the latter includes matters like going to classes and attending non-required academic activities. In commuter institutions, however, academic involvement, and particularly academic achievement, is more important than social involvement in ensuring first year persistence. Indeed, social involvement is sometimes at odds with retention. Research relevant to the foregoing points has been conducted by Pascarella and Associates, 1981; Pascarella and Associates, 1983; Pascarella and Chapman, 1983; Braxton and Brier, 1989; Gilbert and Associates, 1989; Dietsche, 1990; and Tinto, 1993.[3] Critics of the student integration model have argued that it ignores factors external to the university having potential implications for student retention such as family support and approval, encouragement of friends, and adequate finances (Bean,

[3]A critique of the application of this model to Canadian circumstances has been offered by Corman et al (1992). An example of Canadian research on retention not based on the model is provided by Johnson and Buck (1995).

1983, 1990; Weidman, 1984, 1989; Weidman and Friedman, 1984; Weidman and White, 1985).

Controversy has also arisen over the applicability of the student integration model to the study of minority retention and withdrawal. While the findings of some researchers suggests that the general principles of the model apply equally to both White and non-White students (Fox, 1986; Stith, 1994), other results indicate that different factors explain the retention of minority and non-minority students. For example, Tracey and Sedlacek (1984:177) emphasize non-cognitive factors in explaining Black student persistence. They found that in the United States Black students who did not have support from others, self-confidence, or community involvement were the most likely to drop out. Later research by Tracey and Sedlacek (1987) confirmed this general finding. In this instance it was discovered that first year grades are the best predictor of persistence for Whites. For Black students, however, non-cognitive factors - positive self-concept, realistic self-appraisals, preference for long term goals, and leadership - were related to persistence. Similarly, Gloria and Robinson (1994) found that Chicano(a) students with self-confidence and positive perceptions of the university environment were more likely to persist than other Chicano(a) students.

As a result of criticisms and findings such as the foregoing, in some recent studies of retention and attrition attempts have been made to integrate into one model variables from the student integration model with measures of campus racial climates and factors external to the university (such as family support, adequate financing, and employment while going to school). In one such attempt, Nora and Cabrera (1996:141) found that variables from the student integration model, measures of campus racial climates, and events external to the university were important to an understanding of minority and non-minority retention. Moreover, they conclude that, "the findings indicate that the hypothesized causal model is valid in explaining the social and academic adjustments of *both* [italics mine] minorities and non-minorities in college and subsequent cognitive and affective outcomes including persistence." Overall, despite some item to item differences, similar factors explain the retention and withdrawal of both minority and non-minority students.

Similar to the above findings, Nora and Associates (1996:444) conclude in a study of first year students in a U.S. university that variables utilized in the student integration model, as well as those focusing on forces external to the university, assist in explanations of retention and withdrawal. More concretely, "institutional experiences, academic achievement, and environmental pull factors [financial need, encouragement from others] contributed most to persistence decisions." Importantly, the authors also argue that explanations for minority retention and attrition are *different* from those of non-minority students. From among measures of social integration, interactions with faculty, financial need, encouragement from family etc., number of children, working off-campus, and GPA, the only factor that predicted retention of both minorities and non-

minorities was GPA.

Despite some disparate findings, from the foregoing it can be concluded that retention can be affected by: pre-entry characteristics such as high school grades; students' experiences in the university like contact with faculty, social and academic involvement, and perceptions of prejudice; perceptions of the importance of an education; factors external to the university such as social support and financial security; academic achievement; and racial origin. Whether or not the same factors explain retention/attrition for both minority and non-minority students is open to dispute. With considerations such as these in mind, attention will now focus on voluntary and involuntary withdrawal of minority and non-minority students at York University in Toronto.

Sources of Information

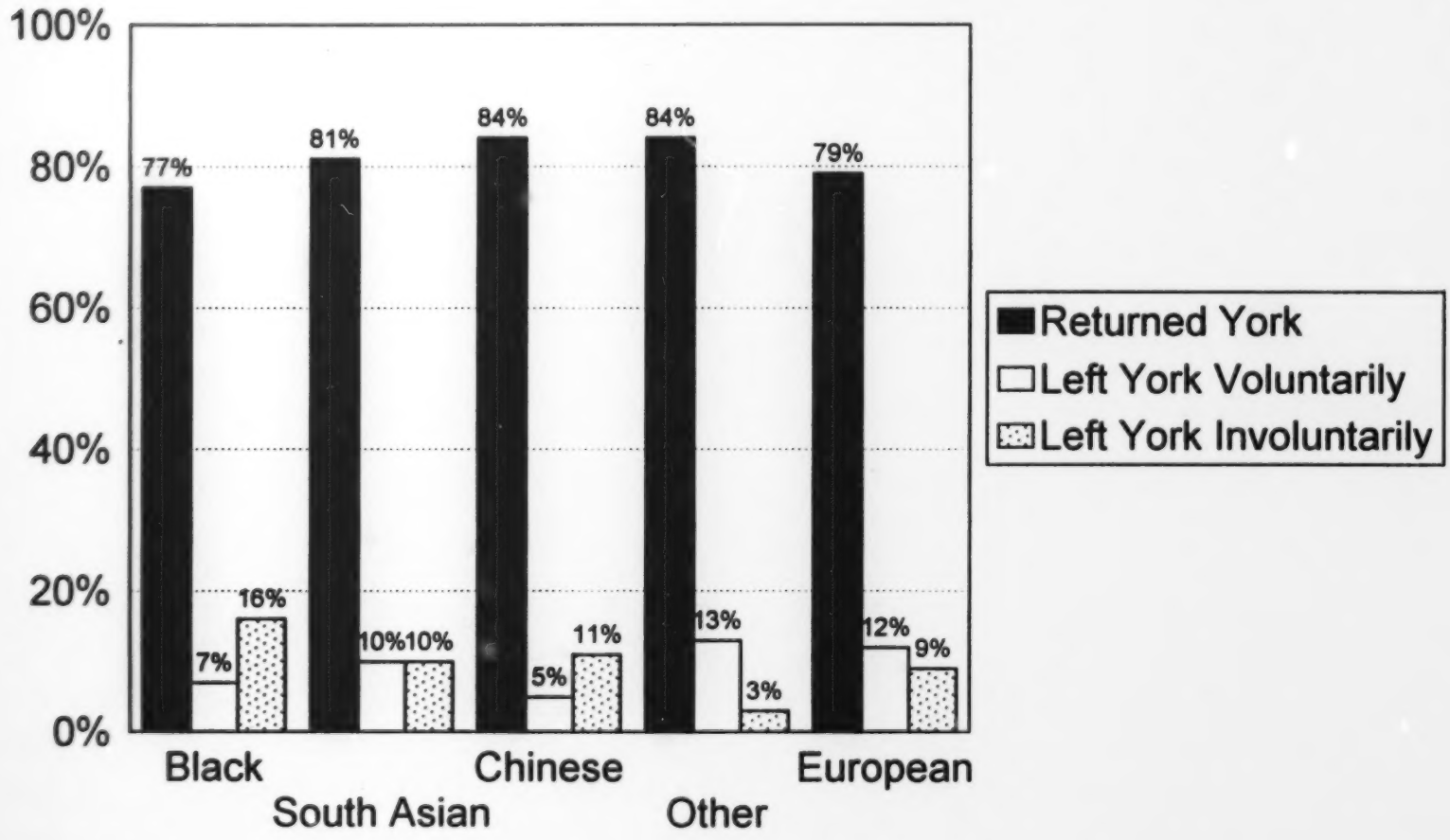
Located on the northern fringe of Metropolitan Toronto, York University has approximately 40,000 full- and part-time students. Of students in first year, only 10% live in residence on campus and 70% live with their parents. Approximately half of first year students come from families in which the average family income is below the provincial average. Approximately two thirds come from homes in which neither parent attended university and roughly 37% report non-European origins.

Information for the current study of first year withdrawal at York University was obtained from three surveys and administrative records. In the first survey, conducted in March of 1993, all 494 first year students in the Faculty of Pure and Applied Science were surveyed. The response rate to the survey was 68%. The second survey, conducted in March 1994, involved a sample of first year students in the Faculty of Arts. In total, 802 students completed questionnaires for a response rate of 54%. Finally, in March of 1995, first year students in all faculties at York (the Faculty of Pure and Applied Science, Arts, Administrative Studies, Environmental Studies, Fine Arts, and Glendon College) were surveyed. All first year students were included in the survey except in the Faculty of Arts where, because of its large size, only a sample was drawn. The final sample size of 1864 for the March 1995 survey represents a response rate of 64%.

Information on Ontario Academic Credit (OAC) marks (i.e., final year of high school marks), first year grade point averages (GPA), and enrolment status at the beginning of second year were obtained from administrative records.

In the following analysis, estimates of the racial composition of first year York students, and the September 1995 retention rate of students who entered the university in September 1994, will be drawn from the March 1995 sample that includes students from all faculties and administrative records. To ensure the availability of adequate numbers of non-White students for an analysis of factors contributing to withdrawal, the 1995 sample of students in all faculties will be

Graph 1: First Year Return Rates by Racial Origin



Chi-square sig. .02

combined with the Science and Arts first year surveys of 1993 and 1994 respectively. The total size of this combined sample is 2664. Of this number, 127 are Black, 81 are of South Asian origin, 250 are of Chinese descent, 248 are of 'other' origin, and 1958 are of European ancestry.

Retention Rates

When the results of the March 1995 survey of students who entered first year in September 1994 is weighted to adjust for over-sampling in small faculties, it is estimated that of the 1994 student cohort 7% are Black, 3% are of East Indian or south Asian ancestry, 14% are of Chinese background, 14% of 'other' origins, and 62% are of European descent.

Of all students entering first year in 1994, administrative records indicate that 81% returned for a second year in September, 1995. Among respondents to the March 1995 survey, however, 91% returned. Once adjustments are made for the over-representation of survey respondents who would return for a second year, from data on racial origin collected in the March 1995 survey, and from information on enrollment at the beginning of second year obtained from administrative records, it is possible to estimate the first year attrition rate by racial origin. This information is summarized in Graph 1.

As previously noted, 81% of the 1994 cohort of entering students returned for a second year in 1995. Information in Graph 1 indicates that there are differences in the return rates based on racial origin; moreover, differences are statistically significant (chi-square sig. .02). Return rates range from a high of 84% for students of Chinese and 'other' origins to a low of 77% for Black students. Return rates for students of South Asian and European origins are 81% and 79% respectively. In one sense, if there is a retention problem, it is one shared by Blacks and students of European origin.

What may cause some alarm is the fact that among Black students 16% fail (i.e. they were debarred); moreover, an analysis (not shown) that only compared Blacks to members of all other groups combined revealed that differences between Blacks and all others are statistically significant.

Factors Explaining Retention

Based on the literature reviewed earlier, it is possible to point to a number of factors on which information is available on York students that might explain the retention patterns recorded in Graph 1. These factors can be grouped under eight headings.

Pre-Entry Characteristics

- OAC marks
- Gender
- Having at least one parent who completed a university education

University Experiences - Social Involvement
- Club involvement
- Sports involvement - played
- Sports involvement - watched
- New friendships at University
- Time spent with new friends
- Pub attendance
- Total hours on campus

University Experiences - Academic Involvement
- Informal academic activities involvement
- Lecture attendance
- Tutorial and lab attendance
- Experiencing a broad range of perspectives in courses
- Believing class topics to be relevant to careers
- Satisfaction with instruction quality

Out-of-Class Contacts with Faculty, Staff, TAs etc.
Racial Climate on Campus
Perceptions of Degree, Program, and Likelihood of Return
- Perceptions of value of degree
- Perceptions of value of York degree
- Perception of likelihood of returning for second year

Experiences Outside University of Potential Consequence for Retention
- Financial concerns
- Family problems interfering with studies
- Employment
- Place of residence (residence, with family, etc.)

GPA
Racial Origin

Information for each of the above variables stratified by racial origin is summarized in Tables 1a to 1g.

Pre-University Characteristics

In general, in the United States, female students, those with high secondary school marks, and students with at least one university educated parent are less likely to leave university at the end of first year than other students. As a result, each was considered in the current study. Table 1a summarizes information on the proportion of males, OAC marks, and the proportion of students with at least one university educated parent for each racial origin group.

An analysis of variance indicates that for each variable differences among students of various racial origins are statistically significant.[4] Overall, .37 of the

[4]When 'proportion male' and 'proportion at least one parent university' were analysed using chi-square, the same levels of significance were observed. As a result, for the sake of convenience, proportions were used for discussion purposes.

Table 1a: Pre-University Characteristics by Racial Origin

Racial Origin		Proportion Male**	OAC Marks***	Proportion At Least One Parent University***
Black	Mean	.26	76.87	.26
	N	127	111	100
	Std. Deviation	.44	5.19	.44
South Asian	Mean	.33	78.86	.43
	N	81	72	74
	Std. Deviation	.47	5.57	.50
Chinese	Mean	.45	78.22	.21
	N	248	224	229
	Std. Deviation	.50	9.46	.41
Other	Mean	.33	77.71	.44
	N	248	220	231
	Std. Deviation	.47	8.35	.50
European	Mean	.37	79.25	.36
	N	1952	1774	1854
	Std. Deviation	.48	6.79	.48
Total	Mean	.37	78.89	.35
	N	2656	2401	2488
	Std. Deviation	.48	7.17	.48

*F sig. .05; **F sig. .01; ***F sig. .001

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Table 1b: University Social Experiences - Social Involvement

Racial Origin		Total Club Involvement***	Total Sports Played	Total Sports Events Watched**	No. New Friends in University**	Hours Week Friends***	Pub Visits per Week***	Hours Week on Campus
Black	Mean	.75	.37	.54	13.76	1.10	.24	24.22
	N	126	126	125	121	119	126	111
	Std. Deviation	.94	.89	1.17	10.54	.44	.38	10.73
South Asian	Mean	.75	.23	.25	14.49	1.05	.21	25.80
	N	79	79	80	79	76	81	76
	Std. Deviation	.99	.62	.77	9.94	.46	.38	9.42
Chinese	Mean	.67	.26	.23	11.94	1.01	.17	22.47
	N	244	245	246	243	241	242	235
	Std. Deviation	.91	.74	.69	8.85	.41	.31	9.32
Other	Mean	.71	.28	.45	13.83	1.18	.28	23.98
	N	244	241	244	233	233	242	216
	Std. Deviation	.96	.71	1.00	9.38	.52	.39	10.52
European	Mean	.48	.37	.49	14.42	1.17	.38	24.12
	N	1944	1939	1944	1878	1824	1929	1651
	Std. Deviation	.83	.87	1.06	10.21	.51	.43	9.31
Total	Mean	.54	.35	.46	14.10	1.15	.34	24.00
	N	2637	2630	2639	2554	2493	2620	2289
	Std. Deviation	.87	.84	1.03	10.04	.50	.42	9.52

*F sig. .05; **F sig. .01; ***F sig. .001

total student sample is male. Students of Chinese origin have the greatest proportion of males (.45), and Black students the lowest (.26). Although the differences among OAC marks of racial groups are statistically significant, absolute differences are not large. From administrative records we see that the highest OAC marks (79.25%) were achieved by students of European origin, the lowest (76.87%) were reported for Blacks. Finally, whereas .35 of all students indicate that at least one parent completed university, the highest proportion is reported by students of 'other' origins (.44) and the lowest by Black students (.26). The degree to which characteristics such as these contribute to retention will be examined in a logistic regression analysis later.

University Experiences - Social Involvement

Under certain circumstances, social involvement can contribute to student retention. In this study, social involvement was measured by: the total number of memberships in clubs and organizations; the total number of on-going sports activities in which students played; the number of sports events watched since the beginning of classes; the number of new friends made in university; the hours per week spent with such friends; the number of visits per week to campus pubs; and the total number of hours per week on campus. As seen from Table 1b, with the exception of total sports played and hours per week on campus, an analysis of variance revealed statistically significant differences based on racial origin. Because of space constraints, in this and subsequent tables, attention will focus on variables for which differences are statistically significant.

The greatest average number of clubs and organizational memberships (.75) were reported by Black students and those of South Asian origin. Students of European descent reported the fewest (.48). For total number of sports watched since the beginning of classes, the greatest average (.54) was reported by Black students and the least (.23) by students of Chinese origin. Students of South Asian origin made the greatest number of new friends since the beginning of classes (14.49) and students of Chinese origin (11.94) the fewest. While the differences are small, students of 'other' origins spent the greatest amount of time with their new friends (1.18 hours) and Chinese origin students the least (1.01 hours). Students of European origin make the most use of campus pubs (.38 times per week) while pubs are frequented least by students of Chinese origin (.17 weekly visits). Overall, it seems that students of Chinese origin are less socially involved than others.

University Experiences - Academic Involvement

Particularly in commuter universities such as York, retention has been linked to students' academic involvement in the institution. As reported in Table 1c, academic involvement was measured by : number of times over the previous two months students participated in non-required academic and career activities such as attending taiks by guest speakers; the percentage of lectures usually attended;

Table 1c: University Experiences - Academic Involvement

Racial Origin		Activities Involvement 2 Months	Percent Lectures Attended*	Percent Labs,etc Attended***	Wide Range of Perspectives in Class***	Class Topics Important Career*	Satisfaction Instruction Quality	Contacts Faculty, Staff, TAs, etc.
Black	Mean	1.08	90.79	89.37	3.56	3.07	3.48	.44
	N	124	126	123	117	120	125	103
	Std. Deviation	1.43	14.86	18.04	1.14	.65	.82	.48
South Asian	Mean	.90	93.72	91.10	3.59	2.95	3.50	.55
	N	78	81	78	74	77	80	65
	Std. Deviation	1.34	10.73	16.85	1.03	.72	.93	.61
Chinese	Mean	.69	89.33	83.29	3.49	2.84	3.33	.71
	N	242	250	240	177	219	248	176
	Std. Deviation	1.18	15.92	27.36	.77	.65	.83	.94
Other	Mean	.95	90.57	87.40	3.47	2.99	3.34	.57
	N	240	247	234	198	233	248	188
	Std. Deviation	1.26	13.73	21.76	.99	.67	.92	.74
European	Mean	.92	91.87	91.66	3.73	2.94	3.46	.50
	N	1922	1950	1871	1546	1823	1944	1451
	Std. Deviation	1.33	12.76	17.94	.96	.71	.91	.65
Total	Mean	.90	91.52	90.35	3.67	2.94	3.44	.52
	N	2606	2654	2546	2112	2472	2645	1983
	Std. Deviation	1.32	13.25	19.52	.97	.70	.90	.69

*F sig. .05; **F sig. .01; ***F sig. .001

the percentage of tutorials and labs usually attended; on a five point scale where 1 means strongly disagree and 5 strongly agree, evaluations of a statement that a wide range of perspectives was offered in classes; on a five point scale were 1 meant not at all relevant and 5 very relevant, assessment of the relevance of course topics to future career goals; satisfaction with the quality of instruction where 1 meant very dissatisfied and 5 very satisfied; and over the past two months the number of out-of-class contacts of ten or more minutes with faculty, staff, TAs, and lab demonstrators. Analyses of variance revealed statistically significant race based differences for all but activities involvement and satisfaction with the quality of instruction.

Overall, students report attending 91.52% of their lectures and 90.35% of tutorials and labs. On each of these measures, however, students of Chinese origin report the lowest levels of involvement: they go to 89.33% of lectures and 83.29% of tutorials and labs. The highest lecture attendance rate (93.72%) is reported by South Asian origin students and the highest tutorial and lab attendance (91.66%) by students of European origin (differences between European and South Asian students, however, are slight). Students of European origin are more likely than others to believe that a wide range of perspectives is offered in classes (3.73) and 'other' students are the least likely to report the same phenomenon (3.47). Overall, although statistically significant, absolute differences on this measure are small. More than others, Black students (3.07) are likely to feel that topics in their classes are relevant to career success. Students of Chinese origin are the least likely to make this claim (2.84). Once again, while statistically significant, absolute differences are small. When it comes to out-of-class contacts of ten or more minutes with faculty, staff, TAs, etc., the greatest number of meetings over the past two months (.71) are reported by Chinese origin and the fewest by Black students (.44). Overall, with the exception of this last measure, students of Chinese origin appear to be less academically involved than members of other origin groups.

Campus Racial Climate

The extent to which the nature of the campus racial climate contributes to the attrition of minority students is yet to be confirmed. In this study, one question was utilized in an attempt to measure racial climate. Students were asked the degree to which they agreed with a statement that "visible minority students were treated the same way by professors, staff, and students as other students were treated." Response options varied from 1, strongly disagree, to 5, strongly agree.

An analysis of variance indicates that there are statistically significant racially based differences in the perception of the campus racial climate. As seen from Table 1d, students of European origin (4.36), South Asian descent students (4.04), students of 'other' origins (4.00), Black students (3.85), and Chinese origin students (3.64), in that order, believe that all students are treated equally.

Table 1d: Racial Climate

Minorities Treated Equal*		
Black	Mean	3.85
	N	103
	Std. Deviation	1.13
South Asian	Mean	4.04
	N	70
	Std. Deviation	1.17
Chinese	Mean	3.64
	N	198
	Std. Deviation	1.03
Other	Mean	4.00
	N	205
	Std. Deviation	1.09
European	Mean	4.38
	N	1520
	Std. Deviation	.95
Total	Mean	4.23
	N	2096
	Std. Deviation	1.02

*F sig. .001

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Table 1e: Perceptions of Degree and Likely Retention

Racial Origin		Degree Important	York Degree Important	Return to York Second Year
Black	Mean	3.63	2.15	5.39
	N	128	128	118
	Std. Deviation	.61	1.07	1.03
South Asian	Mean	3.64	2.33	5.16
	N	80	79	77
	Std. Deviation	.68	1.08	1.33
Chinese	Mean	3.50	2.20	5.06
	N	249	247	236
	Std. Deviation	.67	.91	1.08
Other	Mean	3.55	2.09	5.15
	N	245	242	230
	Std. Deviation	.69	.97	1.26
European	Mean	3.52	2.08	5.17
	N	1950	1937	1845
	Std. Deviation	.70	.98	1.31
Total	Mean	3.53	2.10	5.17
	N	2650	2631	2506
	Std. Deviation	.69	.98	1.28

Perceptions of Degree, Program, and Likelihood of Return

Students were asked the importance of a degree in general, and a York degree in particular. Possible answers ranged from 1 not at all important to 4 extremely important. Similar response options were available for assessments of the importance of a York degree.

The likelihood of returning to York for a second year was measured by sir ply asking students how likely it was they would return to York University the next Fall. Response options ranged from 1 extremely unlikely to 6 extremely likely. In the student integration model, the emergent belief that students will return for another year of study is viewed as perhaps the most important predictor of retention.[5]

Analyses of variance carried out on the relationship between these variables and racial origin indicates no statistically significant differences. By examining totals, however, it is clear that students value a university degree (3.53) more highly than a York degree (3.10). In addition, in general, students believe that it is very likely that they will return to York for a second year - as indeed most of them do.

Experiences Outside the University of Potential Consequence for Retention

While it may seem self-evident that experiences outside of the university are of consequence for retention, such concerns have only recently been included in modifications of the student integration model. In this study five types of experiences outside of the university were examined. First, on a five point scale where 1 means no problem at all and 5 very problematic, students were asked over the past year how problematic it had been to get enough money to meet the expenses involved in attending university. On the same scale students were also asked to comment on the extent to which family problems had interfered with studies. To obtain a measure of time spent on employment students were asked how many hours per week they were employed. Finally, as living in residence has been found to contribute to retention, students were asked about their living arrangements.

Information in Tables 1f and 1f (continued) suggest statistically significant racially based differences in these variables. The results of an analysis of

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[5]Despite the fact that this variable is an important component of the student integration model, and it has been included in much recent research in the U.S., it appears to be tautological.

Table 1f: Experiences Outside University

Racial Origin		Enough Money Expenses*	Family Interference Studies***	Hours Week Employed***
Black	Mean	2.76	3.11	8.10
	N	123	113	124
	Std. Deviation	1.32	1.45	8.16
South Asian	Mean	2.62	2.96	7.92
	N	78	73	79
	Std. Deviation	1.29	1.49	7.66
Chinese	Mean	2.87	2.99	5.58
	N	241	193	246
	Std. Deviation	1.19	1.21	7.82
Other	Mean	2.74	3.08	7.32
	N	243	211	240
	Std. Deviation	1.21	1.39	8.05
European	Mean	2.96	3.40	8.47
	N	1909	1688	1927
	Std. Deviation	1.34	1.33	8.23
Total	Mean	2.91	3.31	8.06
	N	2594	2278	2616
	Std. Deviation	1.31	1.34	8.20

*F sig. .05; **F sig. .01; ***F sig. .001

Table 1f (continued): Experiences Outside University

			Current Accommodations							
			With Family	Off Campus Friends	Off Campus Alone	Residence Double	Residence Single	Temporary	Other	Total
Racial Origin	Black	Count	87	4	8	8	9	3	5	124
			70.2%	3.2%	6.5%	6.5%	7.3%	2.4%	4.0%	100.0%
	South Asian	Count	73			2	2	1	2	80
			91.3%			2.5%	2.5%	1.3%	2.5%	100.0%
	Chinese	Count	192	13	12	12	8	5	3	245
			78.4%	5.3%	4.9%	4.9%	3.3%	2.0%	1.2%	100.0%
	Other	Count	180	7	9	7	18	15	4	240
			75.0%	2.9%	3.8%	2.9%	7.5%	6.3%	1.7%	100.0%
	European	Count	1355	61	59	91	200	105	33	1904
			71.2%	3.2%	3.1%	4.8%	10.5%	5.5%	1.7%	100.0%
Total		Count	1887	85	88	120	237	129	47	2593
			72.8%	3.3%	3.4%	4.6%	9.1%	5.0%	1.8%	100.0%

Conditions for chi-square not met.

variance indicate that students of European origin (2.96) expressed the least concern with getting money to meet expenses and students of South Asian descent the most concern (2.62). Despite statistical significance, absolute differences are not large. Regarding family problems interfering with studies, students of European origin expressed the least concern (3.40) and once again those of South Asian descent the most concern (2.99). Again, absolute differences are not very large. Students of European origin work more hours per week (8.47 hours) and Chinese origin students the least (5.58 hours). Overall, students of European background find money and family interference less problematic than others. On the other hand they are employed more hours per week than members of other groups.

Data summarized in Table 1f (continued) show that more students of South Asian origin (91.3%) live at home with parents than any other group. By contrast, relatively few Blacks (70.2%) and students of European origin (71.2%) live with parents. The table also shows that more Blacks and European origin students than members of other groups live in single and double residences on campus. As a result, if there were a retention advantage associated with living in residence, Black and European origin students would profit most.

GPA

Information on GPA is summarized in Table 1g. Analyses of variance indicate that there are statistically significant racial origin group based differences in GPA. Students of European origin have the highest GPA (5.50) while Black students have the lowest (4.83). In an analysis of covariance (not shown) in which GPA is adjusted for OAC marks the GPA for Black students is 5.06; for those of European origin, 5.44. In essence, part of the difference in GPA can be explained in terms of entering OAC marks. While statistically significant, the remaining gap is small.

Overall, information summarized in Tables 1a to 1g indicates considerable differences among students of different racial origin. The degree to which these differences have implications for voluntary and involuntary withdrawal at the end of first year will be established through logistic regression procedures.

Factors Affecting Withdrawal

The factors affecting voluntary and involuntary withdrawal were analysed through two logistic regression procedures. In the first, voluntary withdrawal was coded 1 and staying at York 0. In the second involuntary withdrawal (failure) was coded 1 and staying at York 0. In both instances, variables analysed in the preceding section were the independent variables and were entered into the regression equations in block fashion in the order discussed. The extent to which each block of variables affected the percent correctly predicted (PCP) of students who left voluntarily is outlined in Table 2.

Table 1g: GPA

GPA*		
Black	Mean	4.83
	N	125.00
	Std. Deviation	1.64
South Asian	Mean	5.31
	N	81.00
	Std. Deviation	1.62
Chinese	Mean	5.00
	N	245.00
	Std. Deviation	1.86
Other	Mean	5.08
	N	243.00
	Std. Deviation	1.82
European	Mean	5.50
	N	1933.00
	Std. Deviation	1.66
Total	Mean	5.38
	N	2627.00
	Std. Deviation	1.71

F sig. .001

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Table 2: Indicators of Goodness of Fit for Sequential Models of Voluntary and Involuntary Withdrawal

		Pre-Entry Characteristics	University Experiences - Social Involvement	University Experiences - Academic Involvement	Contacts with Faculty, Staff, TAs etc.	Racial Climate on Campus	Perceptions of Degree, Program, and Likelihood of Return	Experiences Outside University	GPA	Racial Origin
Voluntary	Model chi-square improvement	2.77	2.01	14.03	0.05	1.54	79.2	13.74	4.25	11.39
	Statistical Sig.	0.43	0.92	0.05	0.83	0.21	0.00	0.13	0.04	0.02
	PCP	0.00%	0.00%	0.00%	0.00%	0.00%	27.03%	32.43%	45.95%	40.54%
Involuntary	Model chi-square improvement	11.62	5.65	5.54	.46	.84	9.10	19.75	NA	13.65
	Statistical Sig.	.01	.46	.59	.50	.36	.03	.02	NA	.01
	PCP	0.00%	0.00%	0.00%	0.00%	0.00%	4.17%	8.33%	NA	8.33%

For voluntary withdrawals, table data indicate that pre-entry characteristics, university experiences - social involvement, out-of-class contacts with faculty etc., and the campus racial climate have no statistically significant effect on voluntary withdrawal (i.e. the significance level is greater than .05) and do not increase the predictive ability of the model as measured by PCP. University experiences - academic involvement does have a statistically significant effect but does not increase the ability of the model to predict voluntary withdrawal (i.e. PCP remains at 0%). By comparison, the block perceptions of degree, program, and likelihood of return is statistically significant and increases the PCP to 27.03%. Although not statistically significant, with the addition of experiences outside of the university, PCP increases to 32.43%. With the inclusion of GPA there is a statistically significant improvement in the model and PCP increases to 45.95%. The addition of a block of dummy race variables,[6] while statistically significant, decreases the PCP to 40.54%.

In essence, if the race variable block is excluded, the variables in the equation correctly predict 45.95% of students who leave voluntarily.[7] As voluntary leavers represent 5% of the sample, without the model, predictions of a student leaving voluntarily would only be correct 5% of the time. Thus, the model, with a maximum PCP of 45.95% for voluntary leavers, represents a substantial improvement in predictive ability. PCP for students who remain in the university has not been discussed for the reason that with a 95% probability that students will be returnees, improvements in predicability are marginal.

Information in Table 2 on involuntary withdrawals indicates that while the impact of pre-entry characteristics is statistically significant, the PCP of the model remains at 0.00%. Moreover, university experiences - social involvement, university experiences - academic involvement, contacts with faculty etc., and the racial climate on campus are neither statistically significant nor do they improve the PCP. Perceptions of degree etc. make a statistically significant improvement in the model and increase the PCP to 8.33%. Because GPA is used to define the status of involuntary withdrawals, in this equation it could not be used as an independent variable. Finally, although the racial origin block makes a statistically significant improvement in the model, the PCP nonetheless remains at 8.33%. Although this is a low PCP, as involuntary leavers represent 3.5% of the sample, without the model, predictions of involuntary departure would only be correct 3.5% of the time. Thus, a PCP of 8.33% represents some improvement in predictive power.

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[6]For Black, 1 = Black 0 = other; South Asian, 1 = South Asian 0 = other; Chinese, 1 = Chinese 0 = other; 'Other', 1 = 'Other' 0 = other; European, 1 = European 0 = other.

[7]When a comparable analysis was carried out using OLS regression, the model with race included explained 20.80% of the variance. With race variables excluded, 19.04%. For a justification of using OLS regression with a dichotomous dependent variable see Dey and Astin (1993).

Table 3: Logistic Regression Parameter Estimates- Voluntary Withdrawal

Variable	Regression Coefficient	df	Wald	Sig.	Odds Ratio
Male	-1.62	1	8.82	.00	.20
Perceptions of value of degree	-.68	1	4.95	.03	.50
Perception of likelihood of returning for second year	-.97	1	49.19	.00	.37
GPA	.37	1	3.90	.05	1.46

As it does not increase the PCP, it could be argued that the race variable block should be removed from the analysis; however, as will be seen, Black and 'other' origin are statistically significant. As a result, they will be left in the model focusing on *involuntary* withdrawal.

As seen perviously, the addition of racial origin variables decreases the PCP of the model with *voluntary* withdrawal as the dependent variable. As a result, parameter estimates will be based on the inclusion of variables in all blocks with the exception of racial origin. Individual variables included in the various blocks that make a statistically significant contribution to the model dealing with voluntary withdrawal are summarized in Table 3.

The first relevant observation from the table is that only four variables are statistically significant: gender, perception of the value of a degree, perception of the likelihood of returning for a second year, and GPA. On the basis of the odds ratio we can see that controlling for all of the other variables included in the regression being male (female=0, male=1) decreases the odds of voluntarily leaving by 80.00% (100)*(.20-1). Similarly, an increase of one scale point in believing that a degree is important decreases the odds of leaving by 50.00%; an increase of one scale point in the likelihood of returning for a second year decreases the odds of leaving by 63.00%; and an increase in one point in GPA *increases* the odds of leaving by 46.00%: the higher the GPA, the greater the probability of voluntary withdrawal. This result, that is contrary to findings in the United States, has important implications for the university.

A second observation that can be derived from both Tables 2 and 3 is that at York individual variables categorized as social and academic social experiences, out-of-class contacts with faculty, perceptions of the racial climate on campus, and experiences outside the university do not affect voluntary withdrawal. Most importantly, neither does racial origin. Moreover, the variables that do affect voluntary withdrawal are those over which the university has little or no control.

Individual variables within blocks that have a statistically significant effect on involuntary withdrawal are found in Table 4. A comparison with Table 3 reveals that the only common variable to explanations of both voluntary and involuntary withdrawal is the perception of the likelihood of returning for a second year: in this instance, an increase of one scale point decreases the odds of involuntary departure by 41%. Involuntary withdrawal is also affected by weekly hours of employment. For each one hour increase in employment, the odds of withdrawing involuntarily increase by 10%. Compared to living with parents (the reference category) living in temporary accommodation increases the odds of involuntary departure approximately fifteen-fold. Clearly, students in living arrangements such as these are at high risk. Although the racial origin block of variables did not increase the PCP, being Black increased the odds of involuntary

Table 4: Logistic Regression Parameter Estimates- Involuntary Withdrawal

Variable	Regression Coefficient	df	Wald	Sig.	Odds Ratio
Perception of likelihood of returning for second year	-.53	1	7.10	.00	.59
Hours week employed	.10	1	7.99	.00	1.10
Temporary residence	2.79	1	5.72	.02	16.09
Black	2.50	1	9.96	.00	12.12
Other	1.75	1	6.49	.01	5.73

withdrawal more than eleven-fold and being of 'other' origin by more than four-fold.[8]

While the logistic regression analysis shows that in a general model racial origin is of no significance in explaining voluntary withdrawal, and of limited significance in explaining involuntary withdrawal from university, separate analyses for each racial group would be required to determine whether or not the same factors explain each type of withdrawal for different groups. Unfortunately, in view of the number of independent variables under consideration, with the exception of students of European origin, numbers are too few to sustain this type of analysis. Moreover, in view of differences among Black students and those of South Asian, Chinese, and 'other' origins, it would be misleading to combine these groups into a general 'minority' category that could be compared to students of European descent. A previous examination of the same data based on classification and regression tree analysis, however, has provided some indication that while particularly social and academic involvement variables are helpful in explaining the enrolment status of students of European origin, they are of no consequence in explaining the enrolment status of students from other racial groups (Grayson, 1996).

Conclusion

At York, first year retention rates vary little by racial origin. Moreover, among a number of possible variables, only gender, perceptions of the value of a degree, a belief that the students will return for a second year, and GPA are of utility in predicting voluntary withdrawal at the end of first year. Contrary to findings at other institutions, however, in this study it was found that GPA contributes to voluntary withdrawal. Perhaps the explanation for this phenomenon is that students with high GPAs are more likely than others to have opportunities in other post-secondary institutions. Variables often found to be important predictors of withdrawal, such as university social and academic experiences, contacts with faculty etc., perceptions of the campus racial climate, and experiences outside the university are of no consequence. Most importantly, neither is racial origin.

Regarding involuntary withdrawal, students who say that they are likely to return for a second year are less likely than others to depart involuntarily from the university. By contrast, increased hours of employment and living in temporary accommodations contribute to involuntary withdrawal. Similarly, being Black and of 'other' racial origin also have slight effects on the probability of not returning for a second year.

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[8]An OLS regression analysis indicates that the full model explains 17.19% of the variance in involuntary withdrawal. With the race variables excluded it explains 17.09%. See Dey and Astin (1993) for a discussion of using dichotomous dependent variables in OLS regression..

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